

## PATENT ABSTRACTS OF JAPAN

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A61F 2/08

A61L 27/00

(21)Application number : 10-356930

(71)Applicant : TAKIRON CO LTD

(22)Date of filing : 30.11.1998

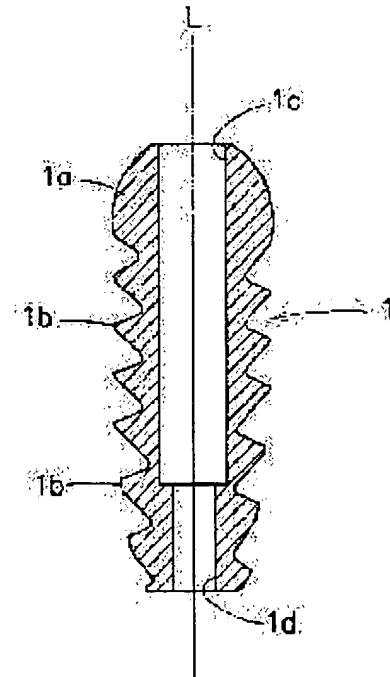
(72)Inventor : HATA KUNIHIRO  
BOUYA HIDEKAZU

## (54) IN-VIVO DECOMPOSITION ABSORPTIVE SCREW

## (57)Abstract:

PROBLEM TO BE SOLVED: To provide an in-vivo decomposition absorptive screw which allows the secure and deep screwing down of a rotating means to the last without the chipping of a hole for insertion of the rotating means and without cracking and crushing the rotating means.

SOLUTION: The screw 1 consisting of an in-vivo decomposition absorptive polymer is constituted by forming an oblong or elliptic hole 1c for insertion of the rotating means on its central line 1 from the top end face of a screw head 1a toward the front end side of the screw. The hole 1c for the insertion of the rotating means is formed to an oblong or elliptic hole shape to avoid the concentration of the rotating force of the rotating means, by which the rotating force is dispersedly acted on the hole and the chipping and cracking are prevented.



## LEGAL STATUS

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registration]

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decision of rejection]

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examiner's decision of rejection]

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**In-vivo biodegradable-absorbable screw for joining fixation of a fractured portion, has elliptical hole for rotation tool insertion formed along main axle line from top end of screw head**  
**Patent Assignee: TAKIRON KK**

**Patent Family**

Patent Number	Kind	Date	Application Number	Kind	Date	Week	Type
JP 2000166937	A	20000620	JP 98356930	A	19981130	200040	B

**Priority Applications (Number Kind Date):** JP 98356930 A ( 19981130)

**Patent Details**

Patent	Kind	Language	Page	Main IPC	Filing Notes
JP 2000166937	A		5	A61B-017/58	

**Abstract:**

JP 2000166937 A

**NOVELTY** The in-vivo biodegradable-absorbable screw (1) has an elliptical hole for rotation tool insertion (1c) formed along the main axle line (L) from the top end surface of the screw head (1a) towards the screw end side.

**USE** For joining fixation of a fractured portion and reconstruction fixation of tendon or ligament.

**ADVANTAGE** Can be firmly and thrust deep. Decomposes and can be absorbed to disappear, such that re-operation can be performed without taking the screw out.

**DESCRIPTION OF DRAWING(S)** The figure shows a cross-section of the in-vivo biodegradable-absorbable screw.

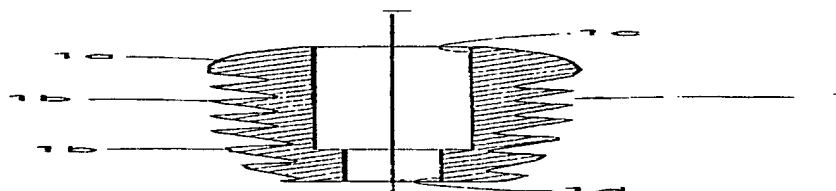
In-vivo biodegradable-absorbable screw (1)

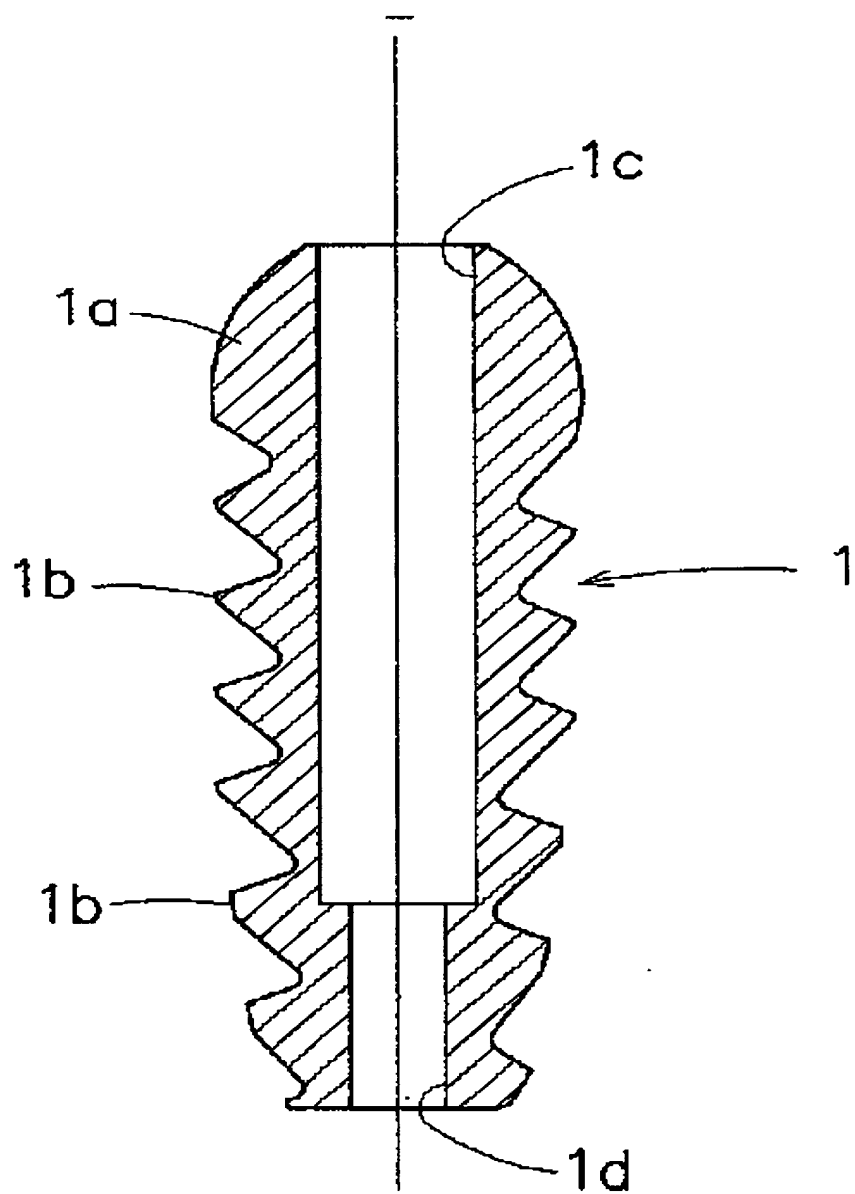
Screw head (1a)

Elliptical hole for rotation tool insertion (1c)

Main axle line (L)

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**IN-VIVO DECOMPOSITION ABSORPTIVE SCREW****Publication Number:** 2000-166937 (JP 2000166937 A) , June 20, 2000**Inventors:**

- HATA KUNIHIRO
- BOUYA HIDEKAZU

**Applicants**

- TAKIRON CO LTD

**Application Number:** 10-356930 (JP 98356930) , November 30, 1998**International Class:**

- A61B-017/58
- A61F-002/08
- A61L-027/00

**Abstract:**

**PROBLEM TO BE SOLVED:** To provide an in-vivo decomposition absorptive screw which allows the secure and deep screwing down of a rotating means to the last without the chipping of a hole for insertion of the rotating means and without cracking and crushing the rotating means. **SOLUTION:** The screw 1 consisting of an in-vivo decomposition absorptive polymer is constituted by forming an oblong or elliptic hole 1c for insertion of the rotating means on its central line 1 from the top end face of a screw head 1a toward the front end side of the screw. The hole 1c for the insertion of the rotating means is formed to an oblong or elliptic hole shape to avoid the concentration of the rotating force of the rotating means, by which the rotating force is dispersedly acted on the hole and the chipping and cracking are prevented.

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**Bone screw, to treat bone fracture; has number of spaced radial bores opening into axial bore extending through threaded shank, and closed in axial direction at end opposite screw head**

**Patent Assignee:** IMPAG GMBH MEDIZINTECHNIK

**Inventors:** EBERLEIN R; WILBERG L

#### Patent Family

Patent Number	Kind	Date	Application Number	Kind	Date	Week	Type
WO 200126568	A1	20010419	WO 2000EP9062	A	20000916	200128	B
DE 19949285	A1	20010531	DE 1049285	A	19991012	200131	
DE 19949285	C2	20020814	DE 1049285	A	19991012	200255	

**Priority Applications (Number Kind Date):** DE 1049285 A ( 19991012)

#### Patent Details

Patent	Kind	Language	Page	Main IPC	Filing Notes
WO 200126568	A1	G	31	A61B-017/86	
Designated States (National): CZ JP PL US					
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
DE 19949285	A1			A61B-017/58	
DE 19949285	C2			A61B-017/58	

#### Abstract:

WO 200126568 A1

**NOVELTY** The screw (10) has a screw head (16) and a threaded shank (18). A number of spaced radial bores (32) open into an axial bore extending through the threaded shank. The axial bore is open at the screw head end (28). The radial bores are open at the radially outer end. The axial bore is closed in an axial direction near the end (30) of the screw shank opposite the screw head. The opening cross-sections of the radial bores extend towards this end.

**USE** Surgical treatment of bone fractures.

**ADVANTAGE** Bone screw is securely anchored with bone cement.

**DESCRIPTION OF DRAWING(S)** The figure shows an arrangement of bone screw, adapter and syringe during the injection of bone cement.

Bone screw (10)

Bone fixing plate (12)

Bone (14)

Screw head (16)

Threaded shank (18)

Central opening in screw head (20)

End of opening near to screw shank (22)

Axial bore (26)

End of screw shank nearest screw head (28)

End of screw shank opposite screw head (30)

Radial bores (32)

Adapter (34)

Lower end of adapter (36)

Axial bore in adapter (40)

Holder (42)

Lower end of holder (44)

Syringe (46)

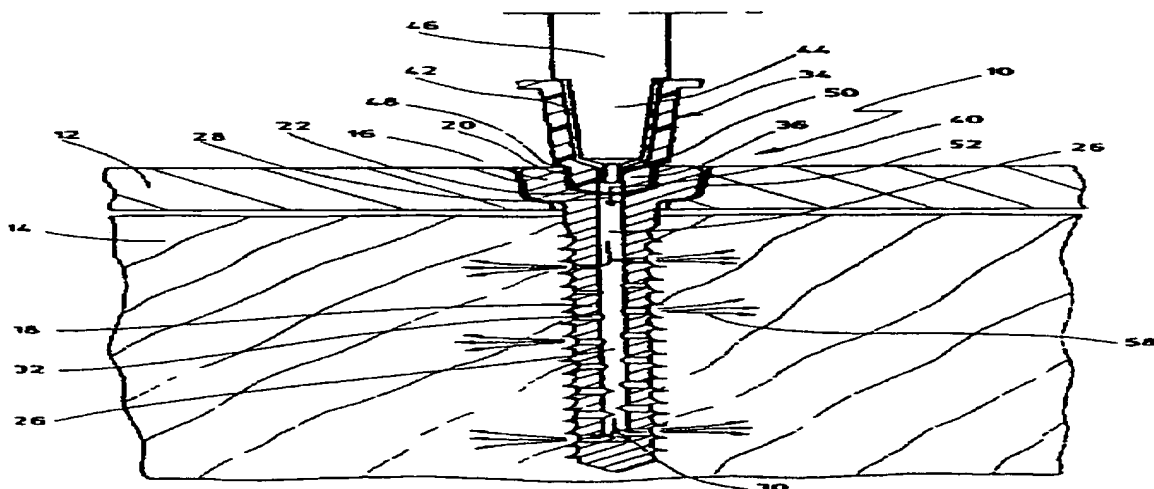
Shoulder (48)

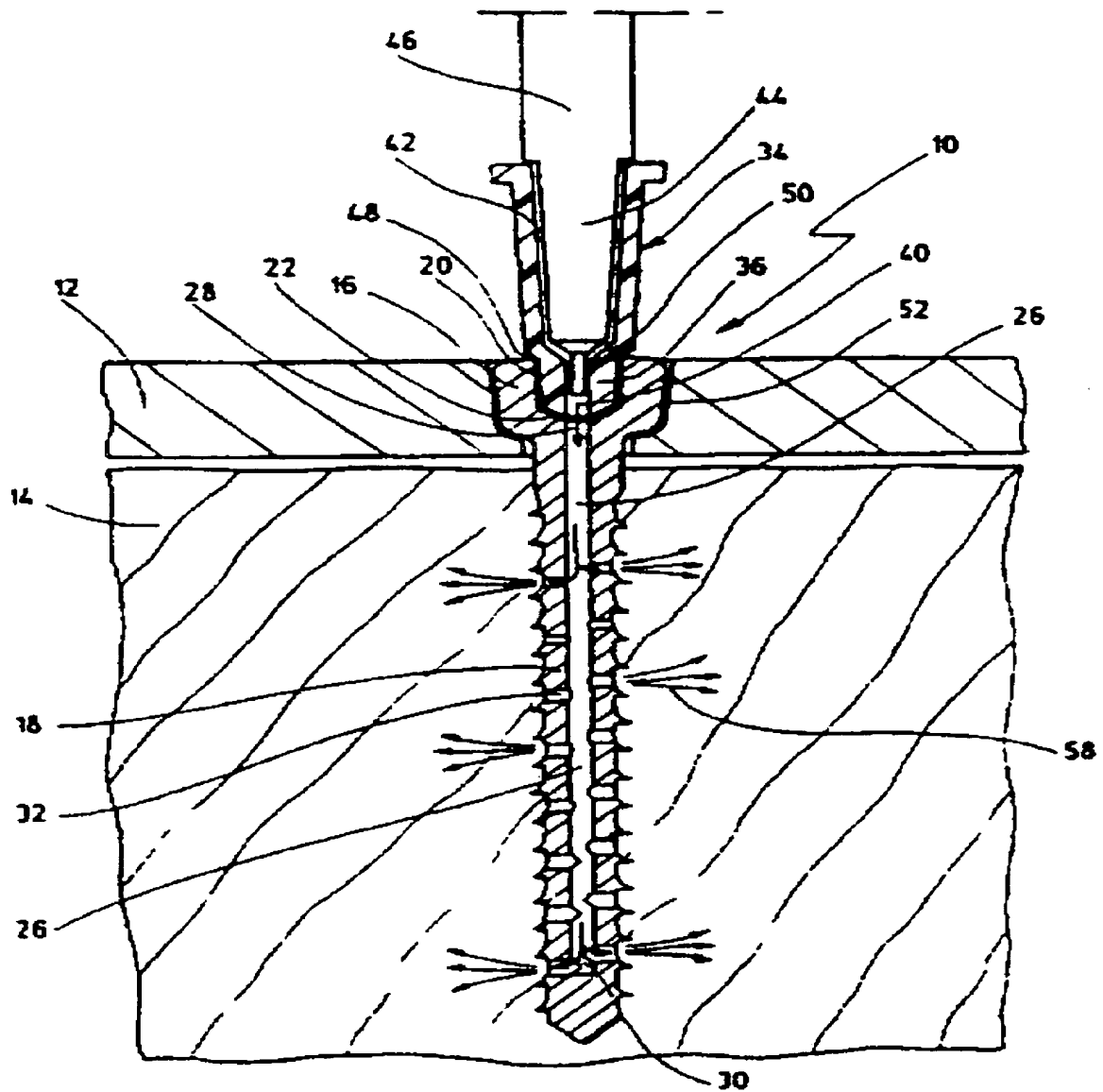
Shoulder (50)

Opening (52)

Movement of bone cement out of bone screw (58)

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